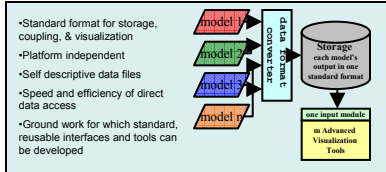# Science Applications
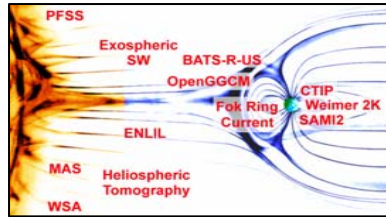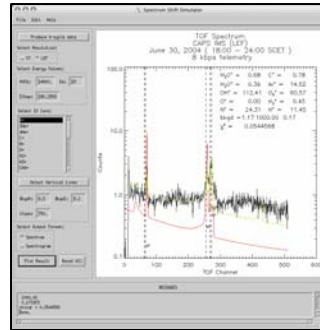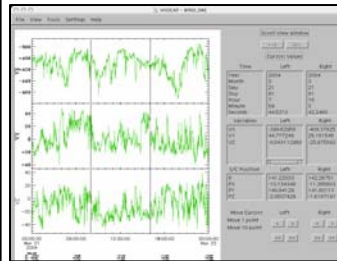
Combining science knowledge with robust numerical methods to develop software driven by specific scientific goals


Ezinne Uzo-Okoro's *Spectrum Shift Simulator* for Cassini/CAPS

Katie Rash' *Virtual Heliospheric Observatory General Analysis Procedure* (VHOGAP) User Interface

- Standard format for storage, coupling, & visualization
- Platform independent
- Self descriptive data files
- Speed and efficiency of direct data access
- Ground work for which standard, reusable interfaces and tools can be developed

Marlo Maddox' Data Access and Standardization for Sun-Earth Modeling

Data Systems

Managing a collection of information resources with a means to store and provide access to science data for both data providers and end users
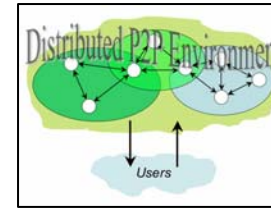
Matt Holland's *Peer to Peer Science Data Environment*
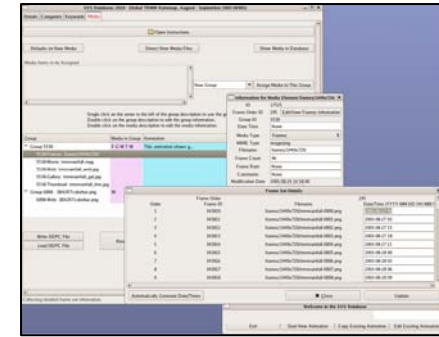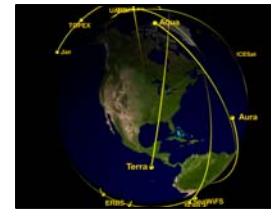
Joycelyn Jones' *Content Management System* for the Scientific Visualization Studio

Carol Boquist works on EOSDIS, the Earth Observing System Data and Information System. EOSDIS manages and distributes more than 2,400 data products and associated services for interdisciplinary studies through the Distributed Active Archive Centers (DAACs).

Code 587: Advanced Data Management and Analysis

Scientific Visualization

Extracting meaningful information out of satellite and model data, allowing for the processing of raw data and images, data mining and analysis, rendering, and mass media distribution
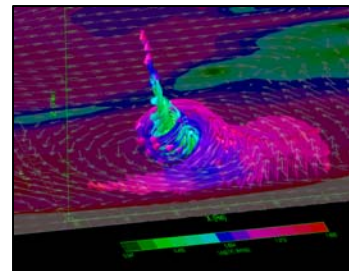
Ryan Boller's *MHD Explorer* tool being used to detect and visualize magnetospheric flow vortices
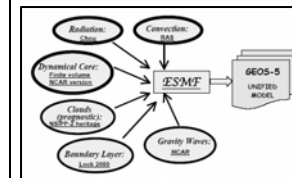

David Berrios' *Space Weather Explorer* visualizing a plasmoid/flux rope

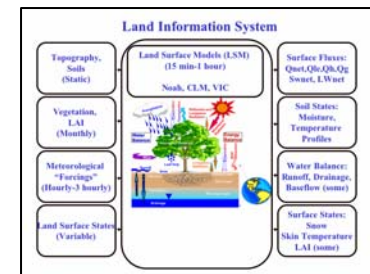A frame from Lori Perkins' animation of Hurricane Wilma's accumulated rainfall

Giovanni data analysis environment from Luther Lighty

Distributed and Parallel Systems

Supporting GSFC's geophysical modeling efforts with high-performance computing

The *Earth Science Modeling Framework* being used to combine disparate data into the *GEOS-5* unified model

Jim Geiger's work on a unified land surface model